CAPSTONE PROJECT

Operational Transformation and Shrinkage Reduction at HEMSA

Monterrey, Nuevo León, Mexico

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Executive Summary

This project documents the operational transformation of HEMSA, a family-owned retail company, through the implementation of structured controls and disciplined execution. Shrinkage was reduced from approximately **10%** to near control levels, representing an estimated **80% improvement** over a two-year period (2002–2004).

1. Business Context

HEMSA operated four high-traffic retail stores in downtown Monterrey, Nuevo León, Mexico. The business was family-owned and lacked formal operating systems, relying on experience, trust, and manual processes. This created structural vulnerabilities enabling inventory and cash losses to accumulate undetected.

Dimension	Description
Structure	Family-owned retail operation, no outside investors
Footprint	4 stores, high-traffic downtown Monterrey locations
Traffic	High-volume, cash-intensive customer transactions
Systems	No formal ERP, inventory system, or POS audit trail
Staffing	Trust-based hiring; minimal procedural documentation

Table 1. Business context summary — HEMSA, Monterrey 2003–2004

2. Core Problem

Shrinkage levels reached approximately **10% of revenue** due to internal losses, operational gaps, and lack of point-of-sale controls. Contributing factors identified during the diagnostic phase:

- Internal theft enabled by absence of accountability structures
- No inventory reconciliation or cycle count procedures in place
- Cash handling at POS with no dual-custody or audit trail
- No management reporting or performance visibility
- No formal SOPs or procedural documentation for store staff

The cumulative annual loss represented a material portion of operating margin, sustained over multiple periods without detection or corrective action.

3. Strategic Insight

Shrinkage was not the problem itself — it was the result of an undefined operating system. The absence of structure enabled loss to occur undetected. This reframing shifted the intervention from symptom management to systems design.

> "Control is not dependent on technology, but on structure. Simple tools, when supported by discipline, can transform operational performance."

4. Intervention Model

A three-layer control structure was designed and deployed across all four store locations. Each layer addressed a specific vulnerability identified during the diagnostic phase:

Layer	Control Area	Key Mechanisms
I	**Inventory Discipline**	Cycle counts, reconciliation sheets, variance tracking
II	**Operational Control**	Documented SOPs, shift checklists, manager sign-off
III	**POS Verification**	Cash reconciliation, dual custody, daily POS audit

Table 2. Three-layer control framework — HEMSA implementation model, 2003

Execution relied exclusively on Microsoft Excel 2003, printed reports, and PowerPoint 2003 for management communication.

5. Execution Tools (2003–2004)

Tool	Application in Project
Microsoft Excel 2003	Inventory tracking, cash reconciliation, shrinkage variance reporting
Printed Daily Reports	Manager accountability sheets, ownership weekly summaries
Microsoft PowerPoint 2003	Executive presentations, professor deliverables
Manual Logs & Binders	POS cash counts, receiving logs, discrepancy records

Table 3. Execution tools deployed — HEMSA, 2003–2004

6. Results

The intervention produced measurable improvements within the first fiscal year across all monitored dimensions:

Metric	Baseline (2002)	Post-Intervention	Change
Shrinkage Rate	~10%	~2%	**-80%**
POS Cash Variance	Untracked	Within tolerance	**+15%**
Inventory Visibility	None	Full cycle count	**Achieved**
Manager Accountability	Informal	Documented sign-off	**Structural**
Operational Culture	Trust-based	Accountability-based	**Transformed**

Table 4. Quantitative results — HEMSA, 2002–2004

Beyond the quantitative results, the project produced a measurable cultural shift: store managers adopted ownership of their metrics, and company ownership developed confidence in the reliability of reported figures for the first time.

7. Conclusion

The HEMSA capstone project demonstrates that operational transformation does not require enterprise technology, significant capital expenditure, or external consultants. The foundation of effective control is structural — defined processes, documented accountability, and consistent enforcement.

An 80% reduction in shrinkage was achieved entirely through disciplined use of tools available in any office in 2004: spreadsheets, printed reports, and direct management engagement. Technology may enhance these capabilities, but it cannot substitute for them.

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ACADEMIC COURSE CORRELATION

Application of MBA Curriculum to the HEMSA Capstone Project

The following section documents how each core MBA course contributed to the methodology, analysis, and execution of the HEMSA operational transformation project. In each case, the academic framework provided the foundation for a practical, field-applied intervention.

MBA Course	How Applied at HEMSA	Academic Translation
Applied Data Analysis & Forecasting	Measured shrinkage as % of sales; compared before vs. after; identified operational deviations using Excel trend logic	Converted intuition into measurable variables
Financial Accounting	Identified that 10% shrinkage = direct cost-of-goods leak; modeled impact on gross margin and operating income	Linked operational gaps to financial statements
Finance	Quantified recovered value from shrinkage reduction; modeled implicit improvement in free cash flow	Converted operational control into financial value
⚙ **Service Operations Management**	Designed inventory flow, standardized operating procedures, eliminated variability across 4 store locations	Built an operating system from scratch
Organizational Behavior	Analyzed cultural shift from trust-based to accountability-based management; introduced formal responsibility structures	Used behavioral science to redefine human conduct
Supply Chain / Operations Integration	Aligned product flow from receiving through inventory to point-of-sale; closed gaps in the internal supply chain	Connected the internal value chain
Strategic Information Systems	Deployed Excel as a management information system; created structured reporting without enterprise software	Built structure, not technology
Strategic / International Marketing	Reduced out-of-stock risk; protected revenue; improved indirect customer experience through product availability	Internal control impacts the customer

Business Communication	Produced Excel-based performance reports and PowerPoint management presentations for ownership and professors	Communicated results with structure and clarity

Table 5. MBA course correlation matrix — HEMSA Capstone Project, 2004

Detailed Course Application Analysis

1. Applied Data Analysis and Forecasting

The project applied quantitative measurement principles to a previously untracked operational problem. Shrinkage was converted from an informal perception into a calculable variable expressed as a percentage of total sales.

- Measurement framework: shrinkage as % of gross sales (baseline: ~10%)
- Before-and-after comparative analysis to validate intervention effectiveness
- Identification of deviations and variance trends using Excel-based tracking
- Application of logical trend analysis to forecast improvement trajectory

Academic translation: Intuition was converted into data. The project demonstrated that any operational problem can be quantified if the right measurement framework is designed first.

2. Financial Accounting

Financial accounting principles were applied to quantify the direct impact of shrinkage on the income statement. The project made visible what had previously been absorbed silently into cost of goods sold.

- Shrinkage identified as a direct leak in cost of goods sold (COGS)
- 10% shrinkage rate modeled as measurable reduction in gross margin
- Reduction in shrinkage translated directly into improvement in operating income

Academic translation: The operation was connected to the financial statements. Every percentage point of shrinkage recovered represented a direct improvement in reported profitability.

3. Finance

Finance principles were used to frame the value creation dimension of the intervention. The recovery of lost value through operational control was modeled as an implicit improvement in cash flow and business value.

- 8% of annual sales revenue recovered through shrinkage reduction
- Improved cash flow through reduced inventory and cash losses at POS

- Control structures positioned the business for improved valuation and scalability

Academic translation: Operational control was framed as a value-creation mechanism. The project demonstrated that improving internal processes has direct financial consequences that can be measured and communicated to ownership.

⚙ 4. Service Operations Management

This was the core disciplinary framework for the project. Service operations management provided the conceptual foundation for designing, implementing, and standardizing an operating system from scratch across four retail locations.

- Designed end-to-end inventory control processes for all store formats
- Eliminated operational variability through standardized procedures
- Introduced formal flow management from receiving through point-of-sale
- Created repeatable operational structure enabling consistent execution

Academic translation: A complete operating system was designed and deployed using first principles from service operations. The intervention demonstrated that structure — not technology — is the foundation of operational control.

5. Organizational Behavior

Organizational behavior principles were applied to understand and redirect human conduct within a system that previously lacked accountability structures. The project recognized that behavior follows structure, and designed accordingly.

- Diagnosed cultural root cause: trust-based management without accountability
- Designed accountability structures to redirect individual and group behavior
- Introduced formal manager sign-off processes to create personal ownership
- Observed and documented measurable cultural shift across store operations

Academic translation: The system was redesigned to redefine behavior. The project demonstrated the organizational behavior principle that individuals act within the structure they are given — change the structure, change the behavior.

6. Supply Chain / Operations Integration

Supply chain principles were applied to map and close the internal flow gaps within the HEMSA retail operation. The project aligned product movement from supplier receiving through inventory management to point-of-sale.

- Mapped internal supply chain: receiving → storage → floor → point-of-sale
- Identified and closed gap points where inventory loss occurred undetected
- Implemented reconciliation checkpoints at each handoff in the product flow

Academic translation: The internal value chain was connected. The project applied supply chain logic to a retail context, demonstrating that loss occurs at the gaps between process stages — not within them.

7. Strategic Information Systems

Information systems principles guided the design of a structured management reporting platform using available tools. The project demonstrated that an information system is defined by its structure, not its technology.

- Deployed Microsoft Excel 2003 as a fully functional management information system
- Designed structured data entry forms, reconciliation sheets, and variance reports
- Generated consistent, time-series reporting enabling management decision-making

Academic translation: Structure was created without technology investment. The project operationalized the information systems principle that data becomes information only when it is organized, consistent, and actionable.

8. Strategic / International Marketing

Marketing principles were applied to understand the indirect customer impact of operational control. The project recognized that internal controls affect the customer experience through product availability and service consistency.

- Reduced out-of-stock risk by improving inventory visibility and reconciliation
- Protected revenue by maintaining product availability at point-of-sale
- Improved indirect customer experience through operational order and consistency

Academic translation: Internal control was connected to customer value. The project demonstrated that operational efficiency and marketing effectiveness are not independent — a well-run store is a better store for customers.

9. Business Communication

Business communication principles were applied throughout the project to translate operational findings into clear, structured reports for multiple audiences: store managers, company ownership, and academic evaluators.

- Designed Excel-based performance dashboards for daily and weekly management review
- Produced PowerPoint presentations summarizing results for ownership and professors
- Established structured reporting cadence: daily logs, weekly reviews, monthly summaries

Academic translation: Results were communicated with structure and clarity. The project demonstrated that an operational improvement is only complete when it can be reported, understood, and acted upon by the intended audience.

Student ID: 96204-3354 | Walther Herrmann Carrasco | University of Massachusetts Amherst | May 2005